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DAILY UPDATE ON GLOBAL AND NATIONAL DEVELOPMENTS ON COVID-19

THE KNOWLEDGE SYNTHESIS TEAM

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Summary

- New evidence has emerged from China indicating that **80%** of people with COVID-19 are asymptomatic.
- Human to animal transmission of COVID-19 was discovered.
- As of April 03, 2020,
 - Globally, more than one million (1,018,107) people have developed COVID-19 with 53,251 deaths.
- In Africa, a total of 6,213 confirmed cases and 221 deaths are reported
- There are 35 confirmed cases, 3 recoveries and no deaths in Ethiopia
- The US FDA has approved a new test on 2nd April 2020 for coronavirus antibodies; the first for use in the United States.
 - The new test will deliver results in about 15 minutes.
- Clinical trials are under way to test the safety and efficacy of RAAS modulators, including recombinant human ACE2 and the ARB losartan.
- Two potential coronavirus vaccines in "milestone" lab trials. The vaccines have been cleared for animal testing by the World Health Organization.

Update on Pathogenesis

- The intermediate host for SARS-CoV-2 (COVID 19) had remained unknown and it has been hypothesized that pangolins might be the intermediate host.
- A whole genome analysis study on SARS-CoV-2 found that the current virus has 96% genomic similarity with bat CoV (RaTG13) and 97.43% spike protein similarity with SARS-CoV-2 suggesting that RaTG13 is the closest strain.
- The study also revealed that SARS-CoV-2 is a recombinant virus of bat and pangolin CoVs that triggered cross-species transmission and emergence of SARS-CoV-2 (Huang J-M, 2020).

Sign and symptom

- New evidence has emerged from China indicating that four fifths of individuals with COVID-19 cases are asymptomatic.

- This report followed testing of arrivals from overseas with publications of daily figures on the number of new coronavirus cases that were asymptomatic.
 - A total of 130 of 166 new infections (78%) identified in the 24 hours to the afternoon of Wednesday 1 April were asymptomatic.
 - This suggests that the virus was circulating longer than generally believed. This is consistent with previous studies that observed presymptomatic transmission of COVID-19.
 - This means the virus is widely spread and large proportion of the population had already been exposed (Day M, 2020).
 - Therefore, *additional public health interventions such as isolation of asymptomatic carriers and strict testing for COVID-19 might be needed in order to contain the pandemic.*

Disease transmission

- Evidence of human to animal transmission: according to the Belgian Government's Federal Agency for Safety of the Food Chain (FAFSC) report, a cat has tested positive for COVID-19 in Belgium and infected by its owner after he returned back from Italy. This suggests that there is human to animal transmission of COVID 19, however the risk of transmission is lower as compared to human to human transmission.
- The British Small Animal Veterinary Association (BSAVA) news reported, so far, only three known cases where pet animals have tested positive for COVID-19; the cat in Belgium and two dogs in Hong Kong.
- BSAVA recommended that there is no need to abandon pet animals since the main route of spread of the disease is still considered to be human to human transmission (Lacobucci G, 2020, FASFC SCat, 2020).

Update on Epidemiology (Incidence, mortality, recovery & epidemiologic parameters)

Global

- More than one million (1,018,107) people have been diagnosed with COVID-19 and 53,251 deaths had occurred as of April 03, 2020, 08:00 GMT.

- 79, 711 new cases and 5,968 new deaths were reported within a day indicating a significant daily increment in the total number of new cases and deaths. (2,875 new cases and 1,080 new deaths in actual number increment)
- Consistently, the United States of America (USA) is the leading country with a total of 245, 373 cases and 6,095 deaths.
- China, which is the origin of the pandemic, has become the fifth country in the world next to Germany (84,794), Italy (115, 242) and Spain (112,065).
- In the United Kingdom (UK), there was concern that the number of deaths from covid-19 may have been underreported. Thus the Office for National Statistics (ONS) reported that 210 deaths involving COVID-19 had occurred in England and Wales by 20 March, however, the government only reported 170 deaths at that time.
 - The explanation given for this discrepancy was that the ONS figures included people who died outside of hospital, such as at home or in a care home, as well as people who had not tested positive for COVID-19 but were suspected of having the virus. This may provide a more complete picture of the impact of COVID-19 on mortality (Day M, 2020).

Africa

- According to the Africa CDC's April 02, 2020 report, a total of 6,213 confirmed cases and 221 deaths were reported in the continent.
- The percentage of recoveries remained low 469 (67.8%) as compared to the world figure which is reported at 80% (n=212,229).
- Large number of cases are reported from South Africa (1,462), which accounted for more than one fifth of the total cases reported in the continent. However, only 5 deaths occurred until April 2, which makes the CFR to be lower than 1%.
- Based on Worldometer report, Egypt (865, 58 deaths), Algeria (986, 86 deaths), Morocco (708, 44 deaths), Tunisia (455, 14 deaths) and Cameroon (306, 7 deaths) are other African countries with high number of cases and deaths.

Ethiopia

- Ethiopian Public Health Institute carried out additional 74 tests for COVID-19 within the last 24 hours, and six of them were confirmed to be positive raising the total

number of cases to 35. Five of the new cases from Addis Ababa while one case was from Dire Dawa.

- Out of the total cases, 28 are mild cases and 2 serious/ critical cases who are under medical treatment in the designated treatment centre.
- One additional case has recovered yesterday raising the total number of recoveries to 3.
- No deaths have been reported
- The laboratory test result for the 65 years old patient with pneumonia who passed away yesterday was confirmed to be negative for COVID-19.

Update on Diagnosis

- According to FIND diagnostics, as of 3rd April 2020 [11:00am, East Africa time], there were 178 molecular assay tests commercialized and 35 tests under development for COVID-19(FIND, 2020).
- WHO on its 2nd April report has stated they have received multiple reports regarding falsified in vitro diagnostics (IVDs) and laboratory reagents for the detection of SARS-CoV-2. WHO confirmed up until 2nd April, eight countries (Australia, Brazil, Canada, PR China, Russian Federation, Singapore, Republic of Korea, United States of America) have listed IVDs for COVID-19 diagnosis based on expedited regulatory assessments. It was also noted in the European Union, regulatory compliance for SARS-CoV-2 diagnostics are self-declared by the manufacturer (World Health Organization, 2020).
- The FDA approved a new test, on 2nd April 2020, for coronavirus antibodies; the first for use in the United States. The takes only about 15 minutes. This test looks only for the presence or absence of the antibodies, it does not say how well any antibodies are working. Although the new test is approved for diagnosis, antibody tests are not likely to be positive in the early days of an infection.
- New data has suggested that people are most contagious two to three days before they have symptoms. It is unclear how good this test would be in those cases. This test is said to be most useful for rapid testing symptomatic people. Antibody testing is expected to eventually help in having a better sense of how widespread the infection is in the population and to help calculate the death rate more precisely.

Antibody tests already are, reportedly, used in China, Singapore, UK and other countries. It is noted just having antibodies does not guarantee immunity from the coronavirus (Apoorva M, 2020).

Update on Treatment

- There have been discussions on the possible benefits or even disadvantage of taking renin–angiotensin–aldosterone system (RAAS) inhibitors. SARS-CoV-2 bind to their target cells through angiotensin converting enzyme 2 (ACE2). These resulted in the increase in the expression of ACE2 in patients treated with ACE inhibitors or ARBs, raising concerns regarding their safety in patients with COVID-19. On the other hand, there is a hypothesis that RAAS blockers may have a protective effect against lung damage or may have paradoxical effect in terms of virus binding. It is important to note that there is no evidence to support this hypothesis of harm or benefit with regards to COVID-19. American Heart Association (AHA), American College of Cardiology (ACC), Heart Failure Society of America (HFSA), European Society of Cardiology (ESC) recommend to continue treatment with RAAS antagonists in those patients who are currently prescribed such agents. Clinical trials are under way to test the safety and efficacy of RAAS modulators, including recombinant human ACE2 and the ARB losartan in COVID-19 (Vaduganathan M, 2020, ASHP, 2020 and Jamil S, 2020).

Update on vaccine

- Scientists in Australia have begun testing two potential coronavirus vaccines in "milestone" lab trials. The vaccines have been cleared for animal testing by the World Health Organization. In the past few days, the Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) team has inserted vaccine samples into ferrets - small, furry mammals which have been proven to contract the coronavirus in the same way humans do. The first option, developed by the University of Oxford, is a vector vaccine. It uses a defective virus to introduce the proteins of the coronavirus to the immune system and induce a response. The second vaccine is designed to encode certain proteins of the coronavirus to the immune system, prompting the body's cells to generate those proteins before the immune system

reacts to them. According the report, the first results from the animal tests could be revealed as early as June(BBC News, 2020).

Update on personal protective equipment

- A commentary published on the Lancet on 2nd April indicates that one of the interventions implemented throughout China is compulsory use of masks in the general population, which might have led to substantial reductions in transmission as of late March, 2020 (Azman AS, 2020).
- A recent study done, based on the experiences in China, suggests risk of asymptomatic transmission and facemask supply and demand should be carefully evaluated before introducing a universal facemask wearing policy in high-risk regions (Wu H-I, 2020).
- WHO still recommends healthy people only need to wear a mask if they are taking care of a person with suspected 2019-nCoV infection (World Health Organization, 2019). The WHO is also, reportedly, reconsidering its guidance (Lena H, 2020).
- The Vice President of the US, who leads the coronavirus task force, confirmed new guidance would be released soon. However, a White House official, who spoke on condition of anonymity to relate internal discussions, indicated that the guidance being considered is narrowly targeted to areas with high community transmission and that the matter remains under discussion. The Washington Post reported, according a copy of the guidance they claim to have obtained, CDC recommends the community use of cloth masks as an additional public health measure people can take to prevent the spread of virus to those around them. The memos and guidance, reportedly, make clear the coverings under discussion are **not** medical masks which are needed by front-line health-care workers and are in extremely short supply. The memos and guidance drafted by the CDC are sent to officials at the Department of Health and Human Services and the White House coronavirus task force for consideration of masks as an additional measure to slow the pandemic (Lena H, 2020).

Update on Public Health Control Measures

- Fineberg suggests five key control measures in view of the United States context (Fineberg FV, 2020). In this review we have focused on the relevant points to our setting.
 - Making diagnostic tests available to screen all contacts if not the general population. This way we can understand the level of transmission and implement a targeted intervention.
 - Supply health workers with PPE and prepare hospitals for a surge in severely ill patients.
 - Differentiate the population in to five groups (i.e. Infected, presumed to be infected, who has been exposed, who is not known to have been exposed or infected, who has recovered from and is immune against the infection) and deal with them accordingly. Those who are *presumed to be infected and show mild symptoms should be isolated and treated in infirmaries*. If they are left for home-based care, like what is being done in the UK, this will increase the risk of household transmission. Being able to *test for immunity among the recovered or the asymptomatic* individuals entirely changes the way how we respond to the outbreak. Because the immune can get back to work and support the economy while the vulnerable stay in quarantine. This can also be translated broadly to map health care workers involvement in patient care.
 - Inspire and mobilize the public. Currently, different organizations and the public are willing to contribute to the control effort. *Engaging the public and stakeholders in a coordinated manner* helps to mobilize resources and get ideas to contextualize the standard control measures.

Psychosocial wellbeing of health professionals during COVID 19 outbreak

Lessons learned from china

- Two tertiary hospitals in sharing their experience reported the following activities:
 - They began with having detailed mental healthcare plan
 - Established a psychological intervention team, to provided online courses to health professionals
 - A hotline service to provide psychological assistance
 - Psychological interventions with a main focus of stress reduction

However, the health professionals were unwilling to take part in the psychological interventions.

Subsequent study explored the reason for the unwillingness of health professionals to participate. Reasons included:

- Acquiring the infection was not a significant cause of worry for the staff
 - Many health professionals during the outbreak mentioned that they did not need a psychologist or psychological intervention, but they immediately needed rest and protective supplies.
 - Finally, they suggested training on psychological skills to deal with patients' anxiety, panic, and other emotional problems and, if possible, for mental health staff to be on hand to directly help these patients.
- (Chen Q, 2020)

Recommendations

- Asymptomatic transmission should be a serious concern and mitigated
- Need to increase testing substantially. Making reagents in Ethiopia is not a farfetched reality. In addition to importing reagents, there is a need to develop the needed reagents in Ethiopia to increase availability
- In the absence of adequate testing, there is a risk of community transmission without the necessary control mechanisms in place. A modelling work (with adequate complexity to ensure accuracy) to project potential numbers will help planning and encourage citizens to comply with national guidance
- Community use of cloth masks remains on the table. It is necessary to follow what is likely to emerge soon. But 'medical' masks should be used by health professionals only
- ACE-2 family antihypertensives: there is a need to follow up patients with COVID-19 taking these medications
- Most patients in Ethiopia have mild symptoms (so far about 95%). There is a need to study carefully the course of patients testing positive
- PPEs need to be produced in large scale as a matter of urgency

- While the psychosocial needs of health professionals are huge, interventions have to be geared towards the felt need of the professionals

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